MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories

Michigan Department of Community Health
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January 28, 2010
Vol. 7; No. 4

New updates in this issue:

- **Michigan Surveillance:** Michigan remains at "sporadic" levels of influenza activity.
- **National Surveillance:** Study finds flu hospitalizations 56 times higher for kids with sickle cell disease.
- **International Surveillance:** N. Africa, S. Asia, E. Europe still see intense 2009 H1N1 transmission.

******2009 Influenza A (H1N1) virus Updates******

Please continue to reference the MDCH influenza website at www.michigan.gov/flu for additional 2009 H1N1 information. Local health departments can find guidance documents in the MI-HAN document library. In addition, additional laboratory-specific information is located at the Bureau of Laboratories H1N1 page at http://www.michigan.gov/mdch/0,1607,7-132-2945_5103-213906--,00.html.

International, (WHO H1N1 2009 update 84 [edited], January 22): The overall situation in largely unchanged since last week. The most intense transmission of pandemic influenza virus continues to occur in North Africa, South Asia, and in limited areas of Eastern Europe. Overall pandemic influenza activity in the temperate northern hemisphere peaked between late October and late November 2009 and has continued to decline since.

In North Africa, limited data suggest that transmission of pandemic influenza virus remains geographically widespread and active throughout the region, but has likely recently peaked in most places. During early January 2010 only the Libyan Arab Jamahiriya reported an increasing trend in respiratory diseases activity. Egypt is now reporting a declining trend after increases in respiratory diseases activity throughout December 2009, suggesting a recent peak in activity during early January 2010. In West Asia, limited data suggests pandemic influenza virus transmission remains geographically widespread however overall activity has been declining in most places during December and January.

In South Asia, active transmission of pandemic influenza virus persists in the northern and western parts of the subcontinent, however overall activity has recently peaked. In India, influenza activity has been largely confined to the northern and western states; activity in the northern states peaked during mid December 2009 and in the western states during early January 2010. In Nepal, active transmission of virus persists, and the trend in respiratory diseases activity remains unchanged since the previous week after reporting continuous increases in activity since late October 2009.

In Europe, pandemic influenza virus transmission remains geographically widespread across parts of western, central, and southeastern Europe, however overall influenza activity continued to decline or remain low in most countries The areas of most intense transmission currently include Poland, Austria, Estonia, Romania, Hungary, and Moldova; however, in all but Romania, ILI activity has declined significantly since peaking in November. The overall rate of specimens testing positive for influenza fell to 20% in Europe after reaching a peak of 45% during early November 2009. Pandemic H1N1 2009 virus continues to be predominant circulating influenza virus in the European region with only sporadic detections of seasonal influenza viruses.

In East Asia, pandemic influenza activity remains widespread but continues to decline in most places. Mongolia reported a very high intensity of respiratory diseases during early January 2010; rates of ILI have been elevated above expected seasonal levels since late October 2009 but are well below a significant peak of activity observed during November 2009. In Japan, overall influenza activity continued to decline since peaking at the end of November 2009, however regional increases in activity were

observed during late December on the southern island of Okinawa. In China, Hong Kong SAR, and Chinese Taipei pandemic influenza activity remains widespread but continues to decline or remain stable. Pandemic H1N1 continues to be the predominant circulating virus in the region but seasonal H3N2 viruses continue to circulate in very small numbers in northern China.

In the Americas, both in the tropical and northern temperate zones, overall pandemic influenza activity continued to decline or remain low in most places. In temperate regions of the southern hemisphere, sporadic cases of pandemic influenza continued to be reported without evidence of sustained community transmission.

The countries and overseas territories/communities that have newly reported their first pandemic (H1N1) 2009 confirmed cases since the last web update (No. 83): Mali. The countries and overseas territories/communities that have newly reported their first deaths among pandemic (H1N1) 2009 confirmed cases since the last web update (No. 83): none.

******Influenza Surveillance Reports******

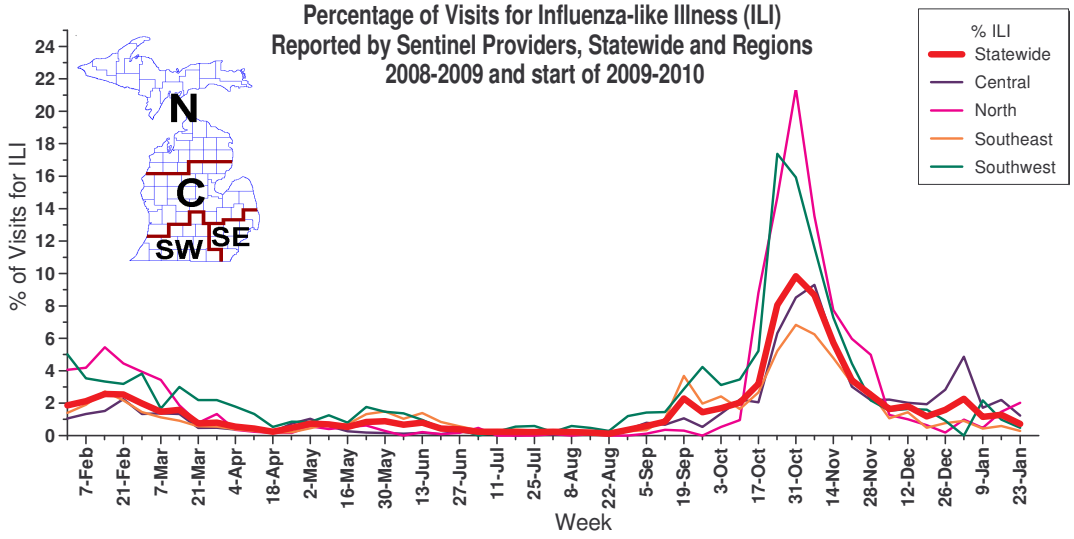
Michigan Disease Surveillance System: Entries in the Michigan Disease Surveillance System (MDSS) for the week ending January 23 showed aggregate influenza, individual influenza, and 2009 novel influenza cases remaining at low levels, similar to recent weeks. Cases reported this week are consistent with the number of cases seen during the same time period in 2009.

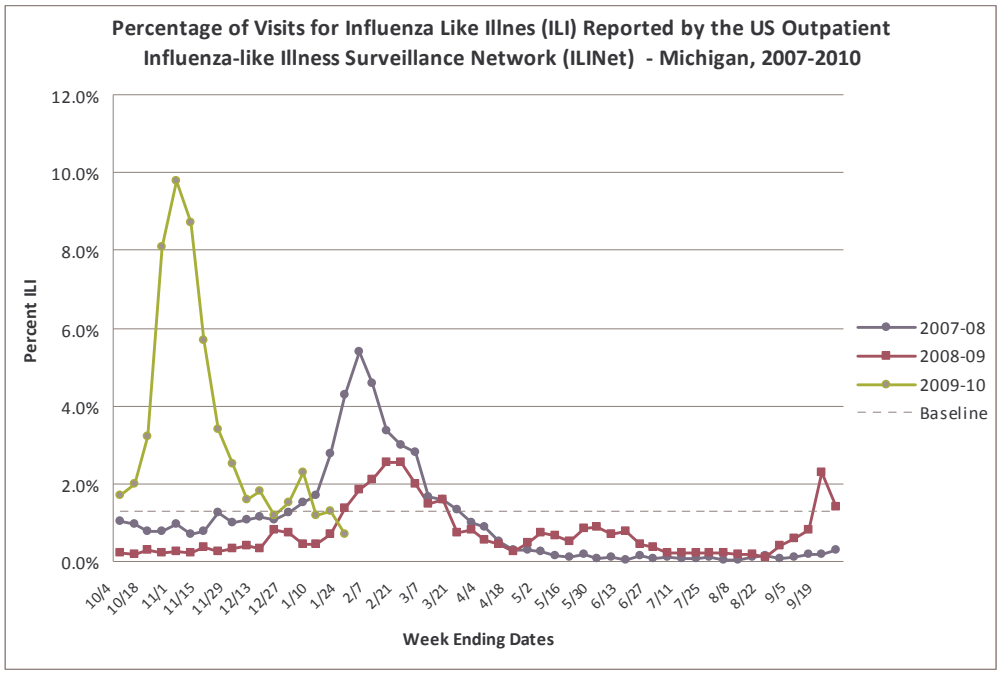
During the week of January 17-23, 2010, 8337 cases of flu-like illness and confirmed and probable cases of seasonal and novel influenza were reported in Michigan. 2083 hospitalizations and 69 deaths associated with influenza were reported during this time. This report is updated every Tuesday by 5:00 pm and can be accessed at "Current H1N1 Activity" on this website: http://www.michigan.gov/h1n1flu.

Emergency Department Surveillance: Emergency department visits from both constitutional and respiratory complaints increased marginally from last week's levels. Both constitutional and respiratory complaints are comparable to levels seen at this time last year. During the past week, there were zero constitutional alerts and seven respiratory alerts in the C(3), SE(2), SW(1), and N(1) Influenza Surveillance Regions. Respiratory alerts increased from one to seven compared to the previous week.

Over-the-Counter Product Surveillance: Surveillance for the previous week showed a very slight increase in pediatric electrolyte and thermometer sales. The increase in pediatric electrolyte sales is likely due to temporary discounts, as un-promoted sales have been steady. Cough/cold and chest rub sales have remained steady over the past two weeks. Current OTC sales levels are comparable with the levels seen during the same period in 2009; with the exception of slightly lower pediatric electrolyte sales.

Sentinel Provider Surveillance (as of January 28, 2010): During the week ending January 23, 2010, the proportion of visits due to influenza-like illness (ILI) decreased to 0.7% overall; 68 patient visits due to ILI were reported out of 9,415 office visits. Thirty sentinel sites provided data for this report. Activity increased in one surveillance region: North (2.0%); and decreased in the remaining three regions: Southwest (0.5%), Central (1.2%) and Southeast (0.3%). Please note that these rates may change as additional reports are received.





As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.

Laboratory Surveillance (as of January 23): During January 17-23, MDCH Bureau of Laboratories identified two 2009 Influenza A (H1N1) isolates. For the 2009-2010 season (starting on October 4, 2009), MDCH BOL has identified 600 influenza isolates:

- 2009 Influenza A (H1N1): 599
- Influenza B: 1

14 sentinel labs reported for the week ending January 23, 2010. 4 labs reported sporadic numbers of flu A positives (SE, C), and 10 labs reported no flu A positives (SE, SW, C, N). One lab reported sporadic influenza B positives (SE). 10 labs reported low or somewhat increasing RSV positives (SE, SW, C, N), and 4 labs reported moderately elevated numbers of RSV positives (SE, SW, C).

Michigan Influenza Antigenic Characterization (as of January 28): One novel H1N1 influenza A virus from Michigan has undergone further characterization at the CDC. This virus was characterized as A/California/07/2009 (H1N1)-like, which is the recommended strain for the H1 component of the 2010 Southern Hemisphere vaccine.

Michigan Influenza Antiviral Resistance Data (as of January 28): Results are currently not available for antiviral resistance at CDC for the 2009-2010 season.

Antiviral resistance testing takes months to complete and cannot be used to guide individual patient treatment. However, CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza. The guidance is available at http://www.cdc.gov/H1N1flu/recommendations.htm.

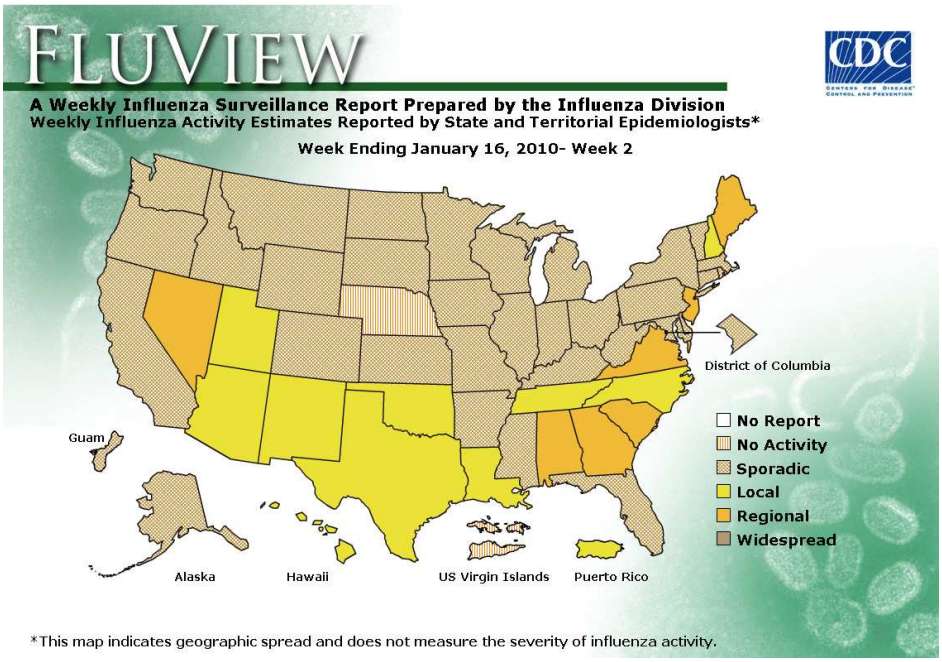
Influenza-Associated Pediatric Mortality (as of January 28): Five 2009 H1N1 influenza-associated pediatric mortalities (SE(3), SW, N) have been reported to MDCH for the 2009-2010 influenza season.

***CDC has asked states for information on any pediatric death associated with influenza. This includes not only any pediatric death (<18 years) resulting from a compatible illness with laboratory confirmation of influenza, but also any unexplained pediatric death with evidence of an infectious process. Please immediately call MDCH to ensure proper specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of January 28): Seven congregate setting outbreaks with confirmatory novel influenza A H1N1 testing (2SE, 3 SW, 1C, 1N), and two outbreaks associated with positive influenza A tests (1C, 1N) have been reported to MDCH for the 2009-2010 influenza season. These are 8 school facilities and 1 long term care facility.

As of January 28, 2010, 567 influenza-related school and/or district closures in Michigan (Public Health Preparedness Region 1 - 55, Region 2N - 4, Region 2S – 8, Region 3 - 54, Region 5 - 153, Region 6 - 100, Region 7 - 109, Region 8 - 84) have been reported.

National (CDC [edited], January 22): During week 2 (January 10-16, 2010), influenza activity decreased slightly in the U.S. 120 (3.7%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. Ninety-eight percent of subtyped influenza A viruses reported to CDC were 2009 influenza A (H1N1) viruses. The proportion of deaths attributed to pneumonia and influenza (P&I) was above the epidemic threshold. Nine influenza-associated pediatric deaths were reported. Three deaths were associated with 2009 influenza A (H1N1) virus infection, four were associated with an influenza A virus for which the subtype was undetermined, one was associated with an influenza A (H3) virus infection, and one was associated with an influenza B virus infection. The influenza A(H3) and B deaths occurred during the 2008-09 influenza season. The proportion of outpatient visits for influenza-like illness (ILI) was 1.8% which is below the national baseline of 2.3%. One of the 10 regions (region 9) reported ILI above their region-specific baseline. No states reported widespread influenza activity, seven states reported regional influenza activity, Puerto Rico, and 10 states reported local influenza activity, the District of Columbia, Guam, and 32 states reported sporadic influenza activity, and the U.S. Virgin Islands and one state reported no influenza activity.



To access the entire CDC weekly surveillance report, visit http://www.cdc.gov/flu/weekly/fluactivity.htm

From http://www.cdc.gov/h1n1flu/updates/us/#totalcases:

U.S. Influenza and Pneumonia-Associated Hospitalizations and Deaths from Aug 30, 2009–Jan 16, 2010

Cases Defined by	Hospitalizations	Deaths
Influenza Laboratory-Tests**	38,989	1,812

**States report weekly to CDC either 1) laboratory-confirmed influenza hospitalizations and deaths or 2) pneumonia and influenza syndrome-based cases of hospitalization and death resulting from all types or subtypes of influenza. Although only the laboratory confirmed cases are included in this report, CDC continues to analyze data both from laboratory confirmed and syndromic hospitalizations and deaths.

International (WHO [edited], January 15): [During weeks 50-51], the level of seasonal influenza activity in most countries was low with only sporadic detections. China reported local in influenza B activity and sporadic H3 and H1 detections. Sporadic seasonal influenza activity was observed in Afghanistan (H1,B), Australia (H3), Cameroon (H3), Canada (H3), China Hong Kong Special Administrative Region (H3,B), Chile (H1), Iran (B), Italy (H3), Japan (B), Kenya (H3,B), Norway (H3), Poland (H1,B), Russian Federation (H1,H3,B), Turkey (H3) and United States of America (B). Uganda and Uzbekistan reported no influenza activity.

MDCH reported **SPORADIC INFLUENZA ACTIVITY** to the CDC for the week ending January 23, 2010.

For those interested in additional influenza vaccination and education information, the MDCH *FluBytes* is available at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html.

Avian and Novel Influenza Activity

WHO Pandemic Phase: Phase 6 – characterized by increased and sustained transmission in the general population. Human to human transmission of an animal or human-animal influenza reassortant virus has caused sustained community level outbreaks in at least two WHO regions.

National, Feline (AVMA, January 15): An 8-year old, female, domestic shorthaired cat was confirmed to be infected with 2009 H1N1 influenza as well as feline herpesvirus. The cat had recently been adopted within 24 hours of its arrival at an animal shelter, and began to show signs of illness (sneezing, runny nose/eyes) 5 days after it was introduced to its new home. Although there was no known exposure to an infected person or other animal, authorities cannot rule out exposure to an infected but asymptomatic (showing no symptoms of illness) person or animal. The cat is recovering from its illness.

National, Research (*Pediatrics* 2010;125:234–243 abstract, January 28): OBJECTIVE: Children with sickle cell disease (SCD) are considered to be at high risk for complications from influenza infection despite minimal published data that characterize the burden of influenza in this population. Our objectives were to (1) estimate the rate of influenza-related hospitalizations (IRHs) among children with SCD, (2) compare this rate with rates of children with cystic fibrosis (CF) and children with neither SCD nor CF, and (3) explore mechanisms that underlie these potentially preventable hospitalizations. METHODS: We analyzed hospitalizations from 4 states (California, Florida, Maryland, and New York) across 2 influenza seasons (2003–2004 and 2004 –2005) from the Healthcare Cost and Utilization Project State Inpatient Databases. We included hospitalizations with a discharge diagnosis code for influenza in a child _18 years of age. We used census data and disease prevalence estimates to calculate denominators and compare rates of IRH among children with SCD, CF, and neither disease. RESULTS: There were 7896 pediatric IRHs during the 2 influenza seasons. Of these, 159 (2.0%) included a co-occurring diagnosis of SCD. Annual rates of IRHs were 112 and 2.0 per 10 000 children with and without SCD, respectively, across both seasons. Children with SCD were hospitalized with influenza at 56 times (95% confidence interval: 48–65) the rate of children without SCD. Children with SCD had approximately double the risk of IRH compared with children with CF (risk ratio: 2.1 [95% confidence interval: 1.5–2.9]). IRHs among children with SCD were not longer, more costly, or more severe than IRHs among children without SCD; they were also rarely nosocomial and co-occurred with a diagnosis of asthma in 14% of cases. CONCLUSIONS: IRHs are substantially more common among children with SCD than among those without the disease, which supports the potential importance of vigorous influenza vaccination efforts that target children with SCD.

International, Human (WHO [edited], January 28): The Ministry of Health of Egypt has announced four new cases of human H5N1 avian influenza infection. The cases are not linked epidemiologically.

The first case is a 20-year-old female from Baniswief governorate. She developed symptoms on 6 January and was hospitalized on 11 January, where she received oseltamivir treatment. The second case is a 1-year-old male from Dakahalya governorate. He developed symptoms on 7 January and was hospitalized on 12 January, where he received oseltamivir treatment. The third case is a 3-year-old male from Assuit governorate. He developed symptoms on 19 January and was hospitalized on 21 January, where he received oseltamivir treatment. The fourth case is a 45-year-old male from Shargea governorate. He developed symptoms on 12 January and was hospitalized on 19 January, where he received oseltamivir treatment.

All four are currently in a stable condition in hospital. Investigations into the source of infection indicated that all four cases had exposure to sick and dead poultry. The cases were confirmed by the Egyptian Central Public Health Laboratories, a National Influenza Center of the WHO Global Influenza Surveillance Network (GISN). Of the 94 laboratory confirmed cases of avian influenza A(H5N1) reported in Egypt, 27 have been fatal.

International, Swine (OIE [edited], January 20): Pandemic influenza H1N1 (2009); Country: Japan
Date of first confirmation of the event: 12/01/2010; Date of Start of Event: 12/01/2010
Date of report: 20/01/2010; Date Submitted To OIE: 20/01/2010
Province: YAMAGATA; Location: Shonai area

Species: Swine; Susceptible: 2445; Cases: 164; Deaths: 0; Destroyed: 0; Slaughtered: 0
Affected Population: Integrated farrow-to-finish farm with 300 breeding sows and a total of 2,445 pigs.
Epidemiological comments: A worker found the animals, which showed poor appetite, fever and cough in the farm occasionally, and reported them to the Livestock Hygiene Service Centre in Yamagata prefecture on 12 January 2010. Ten animals which showed clinical signs were sampled. 5 of 10 samples were found to be influenza A positive by rapid test on 12 January 2010 and 7 of 10 samples were influenza A positive by PCR on 13 January 2010. There were some workers who had been infected with influenza A virus before the outbreak. On 20 January 2010, the virus strains detected from 4 samples were confirmed as pandemic influenza H1N1 2009 by the National Institute of Animal Health. The affected farm is being under voluntary movement restraint. Epidemiological investigation is continuing.
Source of the outbreak(s) or origin of infection: Unknown or inconclusive
Control Measures Applied: Movement control inside the country
To be applied: Screening; Animals treated: No; Vaccination Prohibited: No

International, Swine (OIE [edited], January 25): Pandemic Influenza A H1N1 (2009); Country: Serbia
Date of first confirmation of the event: 25/01/2010; Date of Start of Event: 18/01/2010
Date of report: 25/01/2010; Date Submitted To OIE: 27/01/2010
Province: SRBIJA; District: Rasinski county; Location: Varvarin
Species: Swine; Susceptible: 10830; Cases: 20; Deaths: 0; Destroyed: 0; Slaughtered: 0
Affected Population: The disease has been detected on a commercial pig breeding farm during regular epidemiological control performed by the veterinary inspection. Affected animals showed respiratory signs of the disease and therefore, samples were taken and sent to the laboratory for further investigation. The source of infection is unknown.
Epidemiological comments: Epidemiological investigation is ongoing.
Source of the outbreak(s) or origin of infection: Unknown or inconclusive
Control Measures Applied: Quarantine, Movement control inside the country
To be applied: No Planned Control Measures
Animals treated: Yes; Vaccination Prohibited: No; Treatment Details: symptomatic treatment

International, Poultry (OIE [edited], January 20): Pandemic A/H1N1 virus (2009); Country: France
Date of first confirmation of the event: 19/01/2010; Date of Start of Event: 11/01/2010
Date of report: 20/01/2010; Date Submitted To OIE: 21/01/2010
Département: CÔTES-D'ARMOR; Location: EREAC
Species: Birds; Susceptible: 8600; Cases: 3000; Deaths: 0; Destroyed: 0; Slaughtered: 0
Affected Population: turkey breeder hens
Epidemiological comments: A significant drop in egg production was observed in one of the two premises. No mortality associated. The farm is confined for 7 days after the end of the clinical signs. The application of the biosecurity measures has been recalled.
Source of the outbreak(s) or origin of infection: Unknown or inconclusive
Control Measures Applied: Quarantine to be applied, No Planned Control Measures
Animals treated: No; Vaccination Prohibited: Yes

International, Poultry (OIE [edited], January 21): Low path avian influenza H5N2; Chinese Taipei
Date of first confirmation of the event: 21/01/2010; Date of Start of Event: 09/01/2010
Date of report: 21/01/2010; Date Submitted To OIE: 21/01/2010
Prefecture/City: CHANG-HUA; Location: Fang-Yuan township
Species: Birds; Susceptible: 49000; Cases: 3000; Deaths: 1915; Destroyed: 0; Slaughtered: 0
Epidemiological comments: Samples have been collected and sent to the national laboratory for active surveillance. The haemagglutination inhibition test, RT-PCR, real-time RT-PCR tests and virus isolation have been completed. The positive results of laboratory tests and low mortality demonstrate that the causal agent of this outbreak is low pathogenic avian influenza virus. Nevertheless, for confirming the virulence of the virus, IVPI test and gene sequencing are on the way and the results will be provided to the OIE in the follow up report. This outbreak is co-infected with chicken infectious anemia, mycoplasma and avian infectious bronchitis. Disinfection and cleaning of this farm has been conducted and completed. Movement control has been also implemented. 19 poultry farms within 1-km radius of the index farm have been under vigilant monitoring and no clinical or epidemiological evidence of infection has been found.
Source of the outbreak(s) or origin of infection: Unknown or inconclusive
Control Measures Applied: Quarantine, Movement control inside the country, Screening, Zoning, Disinfection of infected premises/establishment(s)
To be applied: No Planned Control Measures; Animals treated: No; Vaccination Prohibited: Yes

International, Poultry (OIE [edited], January 26): High path avian influenza H5N1; Country: Israel
Date of first confirmation of the event: 26/01/2010; Date of Start of Event: 24/01/2010

Date of report: 26/01/2010; Date Submitted To OIE: 26/01/2010
Province: HAIFA; District: HADERA; Location: EN SHEMER
Species: Birds; Susceptible: 43000; Cases: 700; Deaths: 100; Destroyed: 0; Slaughtered: 0
Affected Population: The farm has three poultry houses that contain 43,000 heavy breeder pullets aged 16 weeks. These poultry houses are in a farm under extremely high biosecurity. Clinical signs occurred in only one house.
Epidemiological comments: The epidemiological investigation is in process.
Source of the outbreak(s) or origin of infection: Unknown or inconclusive
Control Measures Applied: Quarantine, Movement control inside the country, Zoning
To be applied: Stamping out, Screening, Disinfection of infected premises/establishment(s)
Animals treated: No; Vaccination Prohibited: Yes

International, Poultry (HealthDay News, January 19): Birds don't become sick when exposed to the H1N1 influenza strains that caused the 1918 and 2009 global flu pandemics, a finding that suggests birds played no role in the spread of the pandemic-causing viruses, according to a new study.

Researchers injected the 1918 and 2009 H1N1 flu virus strains into chickens. After 18 days, none of the birds had developed flu symptoms or showed any signs of tissue damage. The 1918 H1N1 virus also didn't cause disease in ducks, the study authors reported in the February issue of the *Journal of General Virology*.

"Working out how major human pandemic flu viruses affect birds and other domestic animal species is crucial in discovering what role, if any, they play in spreading viruses in the human population," research leader Shawn Babiuk, a scientist at the Canadian Food Inspection Agency's Center for Foreign Animal Disease, said in a news release from the Society for General Microbiology.

This type of information can help guide decisions about how to respond to influenza outbreaks in poultry.

"These findings support the use of normal veterinary management practices in poultry infected with pandemic 2009 H1N1 influenza and demonstrate that quarantining and culling infected stocks is not necessary," said Babiuk, who added that viruses can behave unpredictably.

"Our understanding of exactly how influenza viruses go on to cause pandemics is still limited," Babiuk added. "Although our research indicates that birds are unlikely to have played a part in the spread of the 1918 and latest 2009 H1N1 pandemic viruses, they may well still play a part in future pandemics."

International, Mutations (WHO Weekly Epidemiological Record [edited], January 22): Preliminary review of D222G amino acid substitution in the haemagglutinin of pandemic influenza A (H1N1) 2009 viruses. The entire article can be accessed online at http://www.who.int/wer/2010/wer8504.pdf.

Summary: Since the first appearance of pandemic influenza A (H1N1) 2009 viruses, certain mutations, including those leading to the D222G substitution in the haemagglutinin (HA) protein and the K340N substitution in the polymerase basic protein 2 (PB2), have appeared sporadically. These substitutions in HA and/or PB2 have been reported in viruses obtained from cases of mild to severe to fatal illness but such viruses have neither formed distinct phylogenetic clusterings nor been associated with consistent changes in virus antigenicity. Based on currently available virological, epidemiological and clinical information, the D222G substitution does not appear to pose a major public health issue. However, the WHO Global Influenza Surveillance Network and its partners will continue to closely monitor pandemic viruses for the D222G and other amino acid substitutions and continually assess associated risks.

Michigan Wild Bird Surveillance (USDA, as of January 28): For the 2009 testing season (April 1, 2009-March 31, 2010), HPAI subtype H5N1 has not been recovered from any of the 111 Michigan samples tested to date, including 58 live wild birds, 39 hunter-killed birds and 14 morbidity/mortality specimens. H5N1 HPAI has not been recovered from 17,394 samples tested nationwide. For more information, visit the National HPAI Early Detection Data System at http://wildlifedisease.nbii.gov/ai/.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at http://www.michigan.gov/emergingdiseases.

Please contact Susan Peters at PetersS1@Michigan.gov with any questions regarding this newsletter or to be added to the weekly electronic mailing list.

Contributors

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Table 1. H5N1 Influenza in Poultry (Outbreaks up to January 28, 2010)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 1/29/10)

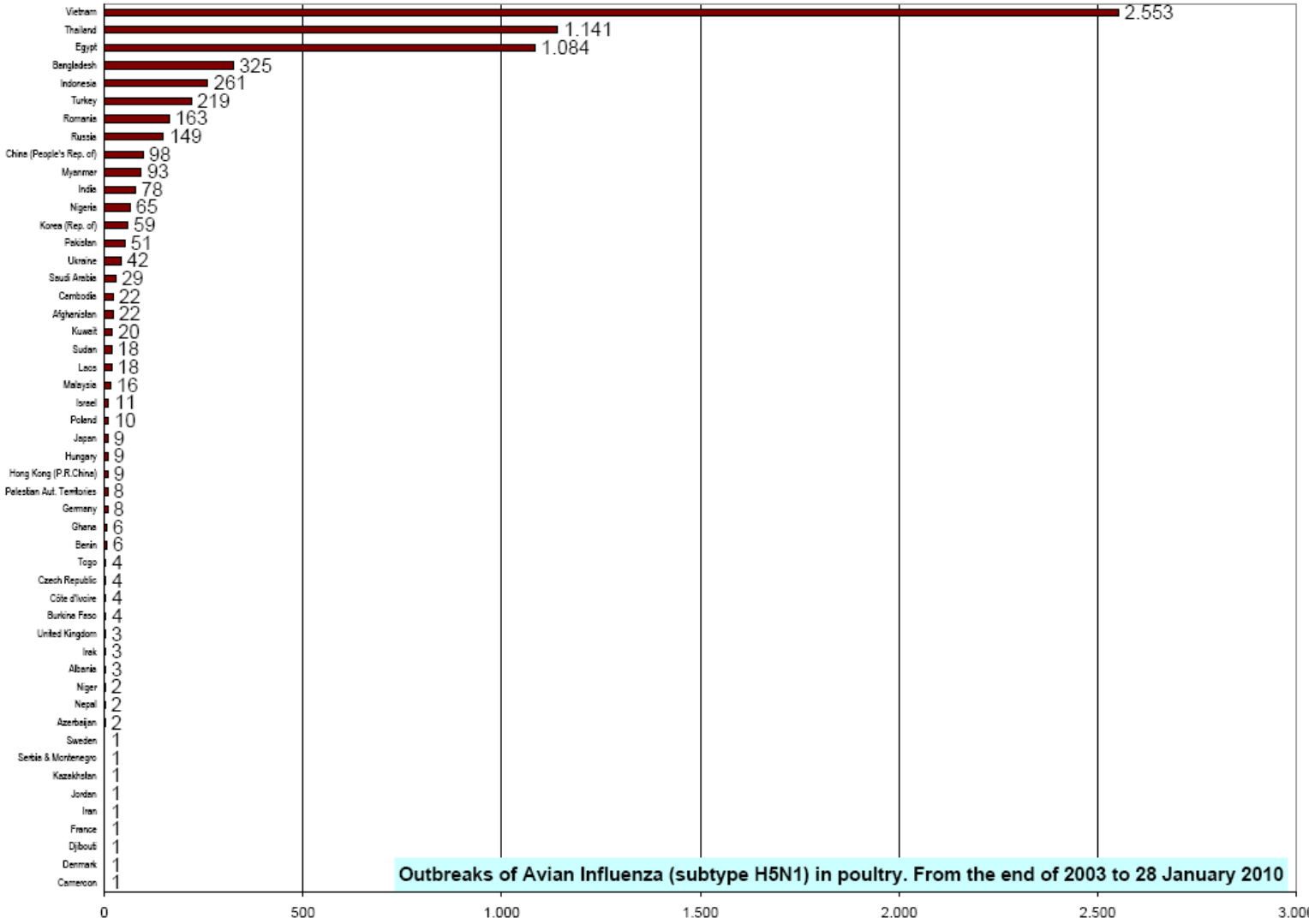

Table 2. H5N1 Influenza in Humans (Cases up to January 28, 2010)

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2010_01_28/en/index.html Downloaded 1/29/2010)

Cumulative number of lab-confirmed human cases reported to WHO. Total number of cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		2010		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	1	0	0	0	9	7
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	0	0	38	25
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	39	4	4	0	94	27
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	20	19	0	0	161	134
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	5	5	0	0	112	57
Total	4	4	46	32	98	43	115	79	88	59	44	33	72	32	4	0	471	282